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THROMBOSIS OF CAVERNOUS SINUSES FROM SUPPURATION IN NASAL CAVITIES.[1]

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The patient, a girl of 15, was admitted to the Montreal General Hospital on October 1st, 1898, complaining of headache and weakness.

Two years previously she was laid up for two weeks with rheumatism in the ankle. Enquiry revealed that there had been a purulent discharge from the nose some weeks previously, but there had been no aural affection.

About two weeks previous to admission, the patient began to suffer from headache. She kept at her work for a week, when she took to bed with severe headache, weakness, and, during the ensuing days, diarrhœa.

State on admission.—She is a moderately nourished girl, inclined to be emotional and cries readily. There is intense headache and on moving she holds her hands to her head. The skin is hot and dry the temperature $101\frac{2}{5}°$ on admission. The pupils are moderately dilated and equal. The teeth are irregular, the mouth open, and the palate much arched, conditions suggesting adenoids. The tongue is moderately coated. The abdomen gives gurgling in the right iliac and left lumbar region, but there is no tenderness, no splenic tumour or rose spots. The heart and lungs are normal, the pulse 120 small and compressible.

Oct. 2. The temperature has varied from 102 ° to 105°. In the afternoon the house physician, Dr. Schwartz, noticed that the left eye was somewhat swollen.

Oct. 3. There is marked œdema of both upper and lower lids, more marked on the right side, with distinct proptosis of both eyes. The temperature continues high, and a rigor took place this afternoon, the temperature rising to $106\frac{}{5}$.

Oct. 4. Proptosis increased in both eyes since yesterday. Eyelids are closed, and on the left side they bulge forward to the level of the forehead, and rather beyond it on the right. The conjunctiva of the right is markedly swollen and œdematous, projecting forward through the

[1] Read before the Montreal Medico-Chirurgical Society, November 7th, 1898.

closed lids. On the left side there is slight œdema of the conjunctiva with a sub-conjunctival hæmorrhage. The eyeballs are immobile, the left pupil dilated as before, the right pupil not seen, owing to swelling and inability to open the eyelids. The left optic disc is slightly swollen, its edges blurred and the veins are full. Slight œdema of the forehead between the eyes is present. There is slight fulness of the side of the neck. but no tenderness of the mastoid, and the middle ears are normal. A second rigor occurred during the previous night.

Oct. 5. A third rigor occurred this morning. Œdema over the right temple and right side of face.

Oct. 6. Occasional delirium occurred during the night. Swelling of the right side of the face and neck is well marked, and there are red lines on the forehead along the course of the veins (purulent phlebitis). Before death the temperature rose to 108°.

Anatomical diagnosis.—Septic thrombo-phlebitis of cavernous sinus; suppuration and necrosis of ethmoidal cells, orbits and scalp; acute purulent meningitis; old suppuration in left antrum; small infarct of spleen; cloudy swelling and fatty degeneration of all organs.

Body of a slightly built young girl, with moderate rigor. Marked bulging of right orbit. Veins of forehead above root of nose are prominent and have a varicose appearance.

On removal of scalp, small pockets of dirty grayish pus are found about the right orbit and in the centre of the forehead; another pocket just behind right ear. Each of these contains about a thimbleful of greenish fetid pus, which on examination shows diplococci and a few short bacilli.

Skull cap thin, diplococci scanty; no signs of suppuration about bone or periosteum. Longitudinal sinus free. The pia on convexity is a little œdematous, but not opaque.

Vessels moderately injected. No lymph.

In the left frontal and orbital regions there is a layer of lympho-pus extending from the Sylvian fissure to the anterior extremity of lobe, the pia being much matted. Small hæmorrhagic areas are seen in the cortex beneath. Another pocket of lympho-pus, size of thumb nail, lies on left side of the pons, the adjoining vein being plugged with firm thrombi. Sylvian arteries free. Right Sylvian fissure free from inflammation. At the base of cerebellum is a collection of pus beneath the arachnoid and covering the middle lobe. Ventricles appear free, but on section at level of island of Reil some purulent infiltration is seen to extend along the deeper convolutions. Medulla intact. Grayish-red soft clots seen in lateral sinus, non-adherent, but speckled with whitish points. In the sella tursica, to the right of the pituitary body, is an area of puruilent nfiltration,

extending in the direction of the cavernous sinus, which is plugged. A similar condition exists on left side, but this is less marked. No signs of old suppuration in frontal sinus. The ethmoid sinus is full of pus and the bones on each side are necrosed. The necrosis also involves the sphenoid wings and the occipital naso-pharynx shows thickening and granulation of mucosa. No adenoids. Turbinated bones show very little change. Left antrum full of pus and a gelatinous looking pulp with some caseous matter. Tissue of both orbits shows purulent infiltration around posterior half of the globe. The right optic nerve is considerably swollen near the point of entrance into eyeball.

Gums and teeth show nothing abnormal.

Heart muscle somewhat pale and opaque. Pericardium ½ oz. clear light-coloured fluid. Valves and coronary vessels healthy. Lungs healthy and crepitant throughout. Colour pale gray. Liver somewhat enlarged, fatty and nutmeg. Intestines and stomach healthy. Cystic ducts patent. Spleen pale, soft and small infarct about the size of a split pea on surface. Pancreas normal. Kidney soft, flabby and pale. Capsule peels readily, surface smooth. Venæ stellatæ prominent. Cortex pale, almost yellowish and swollen. Medulla and pelvis look healthy. Suprarenals healthy. Pelvic organs healthy, except for slight cystic condition of ovaries.

When first admitted the gradual onset of the illness with diarrhœa and headache suggested typhoid ; the headache was, however, much more severe than is usually seen in this disease, and the positive evidences of typhoid, rose spots and Widal's tests, were absent.

The appearance of proptosis and œdema of the lids appearing first on the left, and a few hours later on the right, led to a diagnosis of thrombosis of the cavernous sinuses, beginning on the left side and spreading to the right through the circular sinus, and that its origin was septic, was indicated by the rigors and high temperature.

The origin of the disease was somewhat obscure. The history of nasal discharge suggested some purulent condition in the nasal fossa, although nothing was observed in the anterior nares to confirm such a view.

This case bears a close resemblance to thrombosis of the lateral sinuses, from middle ear disease.

The autopsy showed that the infection had spread from the sphenoidal and ethmoidal sinuses, which were filled with pus, and the analogy is still further borne out by the purulent meningitis at the base of the brain.

The symptoms are very striking—the great œdema of the lids, and

the proptosis of both eyes could only result from this cause. Whilst paralysis of the ocular muscles is usually present in such cases, it seemed impossible to me to state whether the immobility of the eyes was due to this cause or to fixation of the protruded eyeballs by swelling at the back of the orbits.

The œdema of the face, which is absent in pure cases of sinus thrombosis, is satisfactorily explained by the purulent phlebitis of the veins of the face.

MacEwan, in his work on Pyogenic Infective Diseases of the Brain, relates the history of five cases of thrombosis of the cavernous sinuses, one of which was due to infection from an old standing syphilitic ozæma.

Coupland (Trans. of Ophth. Soc., Vol. III., 1887) in reporting a case of cavernous sinus thrombosis, has added twenty-eight others. Of these only one had a distinctly nasal origin, being due to ozæna probably of syphilitic origin. Pus was found in the sphenoidal sinuses.

It would thus seem that suppuration in the nose is a rather rare cause of cavernous sinus thrombosis. The origin is much commoner in suppuration of the middle ear, with thrombosis of the cavernous sinus extending forward. It is occasionally due to suppuration extending from the orbit and from necrosis about the pharynx in scarlatina and diphtheria.